

REMARKS

Applicant has received and reviewed an Office Action dated July 27, 2007. By way of response, Applicant has canceled claims 4-9, 12-13, 16-82 without prejudice, amended claims 1-3, 10, and presented new claims 83-146. No new matter is presented. Claims 1-3, 10-11, 14-15, 83-146 are pending. Applicant submits that the pending claims are supported by the specification.

Support for the amended claims can be found throughout the specification as filed. Support for the recitation of "building block molecules" can be found throughout the specification including at least at the paragraph bridging pages 1-2 and at page 2, lines 3-10.

Support for the recitation of a region "being a contiguous portion of the surface of the solid support with the different building block molecules distributed randomly and evenly throughout the contiguous region" can be found throughout the specification including at least at page 11 lines 8-10 and the paragraph bridging pages 44-45. The term "contiguous" is used herein as meaning "within a common boundary" or "connecting without a break" (synonymous with conterminous) (Wordnet 3.0, Princeton University, 2006; <http://wordnet.princeton.edu/perl/webwn3.0?s=contiguous>) and "continuous, unbroken, uninterrupted: touching or connected throughout" (Webster's Third New International Dictionary).

Support for the recitations of "each building block molecule comprises a framework and n recognition elements and is independently is of the formula: framework-(recognition element)_n", "each recognition element is independently covalently coupled to the framework", n=1, and n=2 can be found throughout the specification including at least at page 10. Support for the recitation of n=3 can be found throughout the specification including at least at formulas 1a and 1b on page 20.

Support for the recitation of "the framework comprises a functional group effective for covalent coupling to a support or a linker" can be found throughout the specification including at least at page 19, line 14, through page 20, line 6.

Support for the recitations of "the framework is alkyl, substituted alkyl, cycloalkyl, heterocyclic, substituted heterocyclic, aryl alkyl, aryl, heteroaryl, or heteroaryl alkyl; substituted with 1 to 4 functional groups" and "the functional groups independently being carboxyl, amine,

hydroxyl, phenol, carbonyl, or thiol” can be found throughout the specification including at least at the paragraph bridging pages 20 and 21.

Support for the recitation of “each recognition element is independently a 1-12 carbon alkyl, substituted alkyl, cycloalkyl, heterocyclic, substituted heterocyclic, aryl alkyl, aryl, heteroaryl, or heteroaryl alkyl moiety; substituted with a group with a property of positive charge, negative charge, acid, base, electron acceptor, electron donor, hydrogen bond donor, hydrogen bond acceptor, free electron pair, π electrons, charge polarization, hydrophilicity, or hydrophobicity” can be found throughout the specification including at least at page 22, lines 17-22.

Support for claims 2, 91, 92, and 126 can be found throughout the specification including at least at page 22, line 23 through page 23, line 4. Support for amended claims 3, 93, 94, and 127 can be found throughout the specification including at least at the paragraph bridging pages 20-21.

Support for claims 95-97 and 128-130 can be found throughout the specification including at least at page 21, lines 8-26. Support for claims 98 and 131 can be found throughout the specification including at least at page 30, lines 1-10. Support for claims 106-107 and 139-140 can be found throughout the specification including at least at page 19, line 14 through page 20, at page 31 and in the Figures.

For the reasons given below, Applicant submits that the amended and newly presented claims are in condition for allowance and notification to that effect is earnestly solicited.

The Examiner Interview

Applicant and Applicant’s undersigned representative thank the Examiner for courtesies extended during the personal interview on June 12, 2007. At that interview, the Examiner suggested that prosecution might be advanced by several changes to the wording of the claims.

Building Block Molecules

For example, the Examiner suggested that the claims might indicate that the building blocks are molecules. Accordingly, the amended and newly presented claims recite “building block molecules”. As described throughout the specification as filed, the building blocks are molecules, and this amendment does not narrow the claims.

Regions

The Examiner also proposed definitions of the term spot that were not intended by the application. Referring to the Balch reference (cited in the prior art rejections), the Examiner suggested that a well of a microtiter plate with an array printed on the bottom of the well might be considered a single spot. Applicant has respectfully submitted that the microtiter well of the Balch reference has a plurality of spots – the spots in the bottom of the well.

To exclude this interpretation of the term spot or region, the independent claims recite a region “being a contiguous portion of the surface of the solid support with the different building block molecules distributed randomly and evenly throughout the contiguous region”

The application as filed employed the term contiguous in the definition of the term region to indicate that a region is “within a common boundary” “conterminous” “continuous, unbroken, uninterrupted: touching or connected throughout”. Accordingly, the claimed method applies 2, 3, 4, 5, or 6 different building block molecules within a common boundary.

Referring again to the Balch reference, each spot printed in the bottom of the well of the microtiter plate includes a single immobilized molecule that is within a common boundary. An area, such as the entire well, including a plurality different immobilized molecules includes a plurality of regions, each region/spot being defined by its own boundary.

Building Block Structure

The Examiner suggested that adding to the claims a structure for the building block molecules might advance prosecution. Applicants have adopted this suggestion. Independent claim 1 and 14 now include a general molecular structure for the building block molecules. Dependent claims 2, 3, 25-32, and 60-65 recite additional structural features for the building block molecules.

Unique Properties of the Building Block Molecules

Applicants undersigned representative and the Examiner discussed unique features of the arrays made by the claimed method. Certain of these unique features can be embodied in the combinations of building block molecules employed to make the arrays. The independent claims are directed to a method in which the combinations of building block molecules employed to

make the array are “naïve”, that is, not previously known to bind to a ligand of interest. The ligand of interest can then be screened against the array to find artificial receptors for that ligand.

Withdrawn Rejections

Applicant acknowledges and appreciates that the Examiner has withdrawn several of the previous rejections.

Rejection of Claims Under 35 U.S.C. § 112, First Paragraph

The Examiner rejected claims 1-3, 10-15 and 80 under 35 U.S.C. § 112, first paragraph. The Examiner objected to the phrase “independently immobilizing the different building blocks to the support” as employed in certain claims. Claims 12, 13, and 80 have been canceled, which renders this rejection moot for these claims. Although this rejection has not been raised for the newly presented claims, it is discussed insofar as it might apply. Applicants respectfully traverse this rejection.

Claims 1 and 14 recite “independently” immobilizing or coupling the building blocks to the support. Support for independently coupling the building blocks to the support can be found throughout the specification including at least at page 29, line 26, through page 31, line 15, at page 38, line 8, through page 42, line 22, in the Examples, and Figures 1, 2, 7A, 7B, and 8-10.

Accordingly, Applicant respectfully submits that the claims fully comply with § 112, first paragraph, and withdrawal of this rejection is respectfully requested.

Rejection of Claims Under 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 1-3, 10-15 and 80 under 35 U.S.C. § 112, second paragraph. The Examiner objected to the wording of certain claims. Claims 12, 13, and 80 have been canceled, which renders this rejection moot for these claims. Although this rejection has not been raised for the newly presented claims, it is discussed insofar as it might apply. Applicants respectfully traverse this rejection.

The Office Action suggested adding a recitation of making the product of the method to each of claims 1 and 14. Amended claim 1 recites “producing an array comprising a candidate artificial receptor, a lead artificial receptor, a working artificial receptor, or a combination thereof”. Amended claim 14 recites “producing a candidate artificial receptor, a lead artificial

receptor, a working artificial receptor, or a combination thereof”. These amendments were made to expedite prosecution of the present application and not to acquiesce to the rejection. These amendments do not narrow the claims.

The Office Action objects to the phrase “different building blocks” in claims 1 and 14. Support for different building blocks can be found throughout the specification including at least at page 10, lines 8-13, which includes the definition:

As used herein, the phrase “plurality of building blocks” refers to two or more building blocks of different structure in a mixture, in a kit, or on a support or scaffold. Each building block has a particular structure, and use of building blocks in the plural, or of a plurality of building blocks, refers to more than one of these particular structures. Building blocks or plurality of building blocks does not refer to a plurality of molecules each having the same structure.

Support can also be found at least at page 29, line 26, through page 31, line 15, at page 38, line 8, through page 42, line 22, in the Examples, and Figures 1, 2, 7A, 7B, and 8-10.

The Office Action objects to the term “naïve” in claims 1 and 14. The term “naïve” is defined in the specification as filed at page 10, line 28, through page 11, line 2 as:

As used herein, the term “naïve” used with respect to one or more building blocks refers to a building block that has not previously been determined or known to bind to a test ligand of interest. For example, the recognition element(s) on a naïve building block has not previously been determined or known to bind to a test ligand of interest. A building block that is or includes a known ligand (e.g., GM1) for a particular protein (test ligand) of interest (e.g., cholera toxin) is not naïve with respect to that protein (test ligand).

Thus, this phrase is clearly defined by the application as filed.

Accordingly, Applicant respectfully submits that the claims fully comply with § 112, second paragraph, and withdrawal of this rejection is respectfully requested.

Rejections of Claims Under 35 U.S.C. § 102(b)

Balch

The Examiner rejected claims 1-3, 10, 11 and 80 under 35 U.S.C. § 102(b) as anticipated by Balch, US 6,083,763. Claim 80 has been canceled, which renders this rejection moot for this claim. Although this rejection has not been raised for the newly presented claims, it is discussed insofar as it might apply. Applicants respectfully traverse this rejection.

The Office Action asserts that the Balch reference discloses (e.g., at column 37, lines 15-47) spots including a plurality of building blocks. This portion of the Balch reference relates to an embodiment illustrated in Figure 17. In fact, the Balch reference describes and illustrates spots that include only a single hapten or drug. Balch makes a plurality of homogeneous spots in a single well of a microtiter plate.

In contrast, independent claims 1 and 14 recite applying 2, 3, 4, 5, or 6 different building block molecules to a solid support in a region or regions, each region “being a contiguous portion of the surface of the solid support with the different building block molecules distributed randomly and evenly throughout the contiguous region”. The application as filed employed the term contiguous in the definition of the term region to indicate that a region is “within a common boundary” “conterminous” “continuous, unbroken, uninterrupted: touching or connected throughout”. Accordingly, the claimed method applies 2, 3, 4, 5, or 6 different building block molecules within a common boundary.

Referring again to the Balch reference, each spot printed in the bottom of the well of the microtiter plate includes a single immobilized molecule that is within a common boundary. An area, such as the entire well, including a plurality different immobilized molecules includes a plurality of regions, each region/spot being defined by its own boundary. The Balch reference does not suggest any reason to produce an array in which each spot includes different combinations of compounds. The Balch reference does not suggest any reason to produce a spot in an array that is an artificial receptor. For at least these reasons, the Balch reference neither teaches nor suggests the presently claimed methods.

Accordingly, based on the foregoing differences, Applicant respectfully submits that the Balch reference neither teaches nor suggests the presently claimed methods, and withdrawal of this rejection is respectfully requested.

New et al.

The Examiner rejected claims 1-3, 10-15 and 80 under 35 U.S.C. § 102(b) as anticipated by New et al., WO 01/01140. Claims 12, 13, and 80 have been canceled, which renders this rejection moot for these claims. Although this rejection has not been raised for the newly presented claims, it is discussed insofar as it might apply. Applicant respectfully traverses this rejection.

The New et al. reference discloses liposomes in a well of a microtiter plate. The liposomes include lipids in non-covalent association with one another. In contrast, the present method recites “covalently” coupling or immobilizing “the different building block molecules to the solid support”. The liposome is not a solid support. Neither the lipids nor the liposome are covalently bound to a solid support. The New et al. reference does not suggest any reason to produce an array in which each spot includes different combinations of compounds covalently bound to a solid support. The New et al. reference does not suggest any reason to produce a spot in an array that is an artificial receptor. Therefore, the New et al. reference neither teaches nor suggests the presently claimed methods.

Accordingly, based on the foregoing differences, Applicant respectfully submits that the New reference neither teaches nor suggests the presently claimed methods, and withdrawal of this rejection is respectfully requested.

Still

The Examiner rejected claims 1-3, 10-15 and 80 under 35 U.S.C. § 102(b) as anticipated by Still. Claims 12, 13, and 80 have been canceled, which renders this rejection moot for these claims. Although this rejection has not been raised for the newly presented claims, it is discussed insofar as it might apply. Applicants respectfully traverse this rejection.

Applicant respectfully submits that the Still reference discloses a bead including a candidate receptor pendant from a bead and that is cleaved from the bead. The presently claimed receptor includes building blocks independently covalently coupled to a surface. It is not a receptor when the building blocks are cleaved from the support.

Accordingly, based on the foregoing differences, Applicant respectfully submits that the Still reference neither teaches nor suggests the presently claimed methods, and withdrawal of this rejection is respectfully requested.

Summary

In view of the above amendments and remarks, Applicant respectfully requests a Notice of Allowance. If the Examiner believes a telephone conference would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the below-listed telephone number.

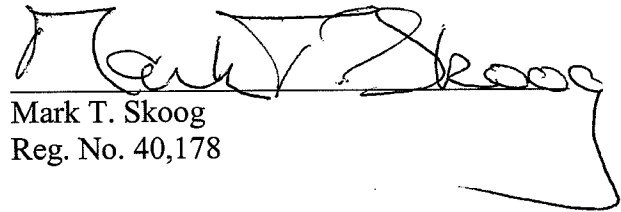
Please charge any additional fees or credit any overpayment to Merchant & Gould P.C.,
Deposit Account No. 13-2725.

Respectfully submitted,

MERCHANT & GOULD P.C.
P.O. Box 2903
Minneapolis, Minnesota 55402-0903
(612) 332-5300

Date: 28 Jan '08

MTS:kf


Mark T. Skoog
Reg. No. 40,178